

AIR QUALITY PERMIT

Issued To: AgriTechnology Montana LLC	Permit #2835-04
511 Central Avenue West, Suite 3	Application Complete: 10/21/03
Great Falls, MT 59404-2848	Preliminary Determination Issued: 10/24/03
	Department Decision Issued: 11/12/03
	Permit Final: 11/29/03
	AFS #013-0026

An air quality permit, with conditions, is hereby granted to AgriTechnology Montana LLC (AgriTech), pursuant to Sections 75-2-204 and 211, Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

Section I: Permitted Facilities

A. Plant Location

AgriTech submitted Permit Application #2835 to construct an ethanol production facility approximately ½ mile northeast of Great Falls, Montana, in parcel 4, in the NE¼ of the NW¼ of Section 3, Township 20 North, Range 4 East, Cascade County, Montana. AgriTech's proposed facility will produce vital wheat gluten, wheat and barley meal, food grade carbon dioxide (CO₂), and fuel grade ethanol. A complete list of permitted equipment for the ethanol production facility is contained in the permit analysis.

B. Current Permit Action

On October 10, 2003, the Department of Environmental Quality (Department) received a request from AgriTech to modify the currently permitted plant configuration identified in Permit #2835-03. In Permit #2835-03, the fermentation system (including a water scrubber) was not an emitting unit, as the CO₂/volatile organic compound (VOC) stream would be routed off-site for processing. Therefore, no emissions were accounted for from the fermentation system. AgriTech requested to be permitted for the alternative scenario of venting the fermentation system to the atmosphere. AgriTech proposed adding another water scrubber to the existing water scrubber for VOC (ethanol) recovery and to limit the amount of VOCs emitted from the fermentation system when it is vented to atmosphere.

Section II: Limitations and Conditions

A. General Plant Requirements

1. All grain receiving areas, all grain cleaning, and the distillers dried grains with solubles (DDGS) loadout areas must be fully enclosed (ARM 17.8.752).
2. AgriTech may not cause or authorize to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

3. AgriTech may not cause or authorize the production, handling, transportation, or storage of any material unless reasonable precautions are taken to control emissions of airborne particulate matter. Such emissions shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.308).
4. AgriTech may not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions, such as flushing paved sources with water, to control emissions of airborne particulate matter (ARM 17.8.308).
5. AgriTech shall not cause or authorize particulate matter caused by the combustion of fuel to be discharged from any stack or chimney into the outdoor atmosphere in excess of the maximum allowable emissions of particulate matter for new fuel burning equipment, calculated using the following equation:

For new fuel burning equipment (installed on or after November 23, 1968):

$$E = 1.026 * H^{-0.233}$$

Where H is the heat input capacity in million BTU (MMBtu) per hour and E is the maximum allowable particulate emissions rate in pounds per MMBtu (ARM 17.8.309).

6. AgriTech shall not cause or authorize particulate matter to be discharged from any operation, process, or activity into the outdoor atmosphere in excess of the maximum hourly allowable emissions of particulate matter, calculated using the following equations:

For process weight rates up to 30 tons per hour: $E = 4.10 * P^{0.67}$
 For process weight rates in excess of 30 tons per hour: $E = 55.0 * P^{0.11} - 40$

Where E is the rate of emissions in pounds per hour and P is the process weight rate in tons per hour (ARM 17.8.310).

7. AgriTech shall not burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions, unless otherwise specified by rule or in this permit (ARM 17.8.322(5)).

B. Individual Conditions for Sources:

1. Sources 1-15, 17-20, 32, 33, and 37-43 as identified in Section I.A, of the Permit Analysis:
 - a. AgriTech shall install, operate, and maintain baghouses at the facility on sources 1-15, 17-20, 32, 33, and 37-43 as specified in their Permit Application #2835-03 (ARM 17.8.752).
 - b. Emissions may not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
 - c. Total particulate matter emissions from the baghouses that control sources 1-15, 17-20, 32, 33, and 37-43 may not exceed the following limits (ARM 17.8.752):

Source #	Particulate Matter Limit (lb/hr)
1	2.31
2	0.09
3	0.20
4	0.06
5	0.15
8	0.05
10	0.19
11	1.04
15	0.09
17	0.05
18	0.04
19	0.17
20	0.04
32	0.05
33	0.05
37	0.02
38	0.01
39	0.06
41a	0.39
41b	0.39
42	0.01
43	0.01

- d. AgriTech shall conduct an initial EPA Method 9 opacity test on sources 1-15, 17-20, 32, 33, and 37-43 and demonstrate compliance with the 20% opacity limitation contained in Section II.B.1.b within 365 days after initial source start up (ARM 17.8.105 and ARM 17.8.749).
 - e. AgriTech shall conduct an initial EPA Method 5 source test on sources 1 and 11 in conjunction with the initial EPA Method 9 opacity test and demonstrate compliance with the emission limitations contained in Section II.B.1.c within 365 days after initial source start up (ARM 17.8.105 and ARM 17.8.749).
 - f. All compliance source tests must be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. Sources 16.1 and 16.2 - Gluten Dryers:
 - a. AgriTech shall use only natural gas to fire the Gluten Dryers (ARM 17.8.752).
 - b. AgriTech shall install, operate, and maintain baghouses at the facility on the Gluten Dryers as specified in their Permit Application #2835-03 (ARM 17.8.752).
 - c. Emissions shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
 - d. Total particulate matter emissions from each Gluten Dryer baghouse may not exceed 2.16 lb/hr (ARM 17.8.752).

- e. AgriTech shall conduct an initial EPA Method 9 opacity test on the outlet of the baghouses controlling the Gluten Dryers and demonstrate compliance with the 20% opacity limitation contained in Section II.B.2.c within 365 days after initial source start up (ARM 17.8.105 and ARM 17.8.749).
 - f. AgriTech shall conduct an initial EPA Method 5 source test on the baghouses controlling the Gluten Dryers in conjunction with the initial EPA Method 9 opacity test and demonstrate compliance with the limitations contained in Section II.B.2.d within 365 days after initial source start-up (ARM 17.8.105 and ARM 17.8.749).
 - g. All compliance source tests must be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
3. Source 30 - DDGS Dryer:
- a. AgriTech shall use only natural gas to fire the DDGS Dryer (ARM 17.8.752).
 - b. AgriTech shall install, operate, and maintain low nitrogen oxides (NO_x) burners (LNB) with steam injection on the DDGS Dryer as specified in Permit Application #2835-03 (ARM 17.8.752).
 - c. NO_x emissions from the DDGS Dryer shall not exceed 18.0 lb/hr and 0.06 lb/MMBtu (ARM 17.8.752)
 - d. AgriTech shall install, operate, and maintain the cyclones and wet scrubbers at the facility on the DDGS dryer as specified in their Permit Applications #2835-00 and #2835-03 (ARM 17.8.752).
 - e. Emissions shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
 - f. Total particulate matter emissions from the cyclones and wet scrubbers combined may not exceed 22.83 lb/hr (ARM 17.8.752).
 - g. AgriTech shall conduct an initial EPA Method 9 opacity test on the outlet of the 2 wet scrubbers controlling the DDGS Dryer and demonstrate compliance with the 20% opacity limitation contained in Section II.B.3.e within 365 days after initial source start up and every other year thereafter (ARM 17.8.105 and ARM 17.8.749).
 - h. AgriTech shall conduct an initial EPA Method 5 source test on the scrubber controlling source 30 in conjunction with the initial EPA Method 9 opacity test and demonstrate compliance with the limitations contained in Section II.B.3.f within 365 days after initial source start-up and every other year thereafter (ARM 17.8.105 and ARM 17.8.749).
 - i. AgriTech shall conduct an initial source test on the DDGS Dryer for NO_x, and demonstrate compliance with the limitations contained in Section II.B.3.c within 60 days after achieving the maximum dryer production rate, but not later than 180 days after initial dryer start up. The testing and compliance demonstrations shall continue every other year thereafter (ARM 17.8.105 and ARM 17.8.749).

- j. All compliance source tests must be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

4. Source 34 - Utility Boiler:

- a. AgriTech shall use only natural gas to fire the utility boiler (ARM 17.8.752).
- b. AgriTech shall install, operate, and maintain the flue gas recirculation (FGR) system and LNBs on the utility boiler as specified in Permit Applications #2835-00 and #2835-03 (ARM 17.8.752).
- c. Emissions from the utility boiler shall not exceed the following:

NO _x	29.7 lb/hr on a 30-day rolling average (ARM 17.8.752)
Carbon monoxide (CO)	17.9 lb/hr (ARM 17.8.752)
- d. Emissions from the utility boiler shall not exceed the following:

NO _x	0.08 lb/MMBtu on a 30-day rolling average (ARM 17.8.752)
CO	0.05 lb/MMBtu (ARM 17.8.752)
- e. AgriTech shall meet all compliance and performance test methods and procedures, emission monitoring, and reporting and recordkeeping requirements as specified in 40 CFR 60, Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators (ARM 17.8.340 and 40 CFR 60, Subpart D).
- f. AgriTech shall meet all compliance and performance test methods and procedures, emission monitoring, and reporting and recordkeeping requirements as specified in 40 CFR 60, Subpart Db, Standards of Performance for Industrial Commercial - Institutional Steam Generating Units (ARM 17.8.340 and 40 CFR Part 60, Subpart Db).
- g. AgriTech shall install, calibrate, maintain, and operate a CEMS on the utility boiler for measuring NO_x emissions as specified in 40 CFR 60, Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators and 40 CFR Part 60, Subpart Db, Standards of Performance for Industrial Commercial - Institutional Steam Generating Units. This CEM shall conform to 40 CFR Part 60, Appendix B, Performance Specification 2 and Appendix F, Quality Assurance Procedures (ARM 17.8.340 and 40 CFR Part 60, Subparts D and Db).
- h. AgriTech shall conduct an initial source test on the utility boiler for NO_x and CO, concurrently, and demonstrate compliance with the limitations contained in Section II.B.4.c and d within 60 days after achieving the maximum boiler production rate, but not later than 180 days after initial boiler start up. The testing and compliance demonstrations shall continue every other year thereafter or according to another testing/monitoring schedule/demonstration as may be approved by the Department (ARM 17.8.105, ARM 17.8.749, ARM 17.8.340, and 40 CFR 60, Subparts D and Db).
- i. All compliance source tests must be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

5. Sources 24-28 - Ethanol Check Tanks (2), Ethanol Product Tank, Gasoline Tank, Off-Spec Ethanol Tank:
 - a. AgriTech shall install, operate, and maintain the following tanks with internal floating roofs that meets the standards specified in 40 CFR Part 60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (ARM 17.8.752, ARM 17.8.340, and 40 CFR Part 60, Subpart Kb).
 - Ethanol check tanks (2)
 - Ethanol product tank
 - Gasoline tank, and
 - Off-spec ethanol tank
 - b. AgriTech shall utilize submerged loading and install, operate, and maintain 2 water scrubbers that have a manufacturer's guarantee to control 95% of VOC emissions while the fixed roof tanks are being filled or emptied (ARM 17.8.752).
 - c. AgriTech shall comply with the testing procedures, reporting and recordkeeping, and monitoring of operation requirements for these sources as specified in 40 CFR Part 60, NSPS, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (ARM 17.8.340 and 40 CFR Part 60, Subpart Kb).
6. Sources 28 and 29 - Ethanol Product Loading Rack to Trucks and Railcars and Fugitive Sources (i.e., valves, flanges, pumps):
 - a. AgriTech shall utilize submerged loading and install, operate, and maintain two water scrubbers that has a manufacturer's guarantee to control 95% of VOC emissions while loading ethanol product into trucks or railcars (ARM 17.8.752).
 - b. AgriTech shall comply with the standards, test methods and procedures, recordkeeping requirements, and reporting requirements as specified in 40 CFR Part 60, Subpart VV -Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry. This requirement shall apply to each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, flange or other connector in VOC service (ARM 17.8.752, ARM 17.8.340, and 40 CFR Part 60, Subpart VV).
7. Source 44 – Fermentation System
 - a. AgriTech shall install and maintain two water scrubbers in series that have a combined manufacturer's guarantee to control 99.75% (95% control per scrubber) of VOC emissions from the fermentation system. AgriTech shall operate both scrubbers any time fermentation system emissions are vented to atmosphere (ARM 17.8.752).
 - b. Emissions from the fermentation system shall not exceed 3.0 lb/hr (ARM 17.8.752).

C. Operational Reporting Requirements:

1. All records compiled in accordance with this permit must be maintained by AgriTech as a permanent business record for at least 5 years following the date of the measurement, must be available for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

2. AgriTech shall submit excess emission reports for the utility boiler continuous emission monitor as specified by 40 CFR 60, Subparts D and Db (ARM 17.8.340 and 40 CFR 60, Subparts D and Db).

D. Emission Inventory Reporting Requirements:

1. AgriTech shall supply the Department with annual production information for all emission points, as required by the Department, in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis and sources identified in Section I of the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in units as required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. AgriTech shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745 that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit.

The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

E. Notification:

1. AgriTech shall provide the Department with written notification of the following dates within the specified time periods for the sources listed in Section I.A of the permit analysis (including the group of all affected equipment as defined in 40 CFR 60, Subpart VV):
 - a. Date of construction commencement no later than 30 days after construction commencement (ARM 17.8.749, ARM 17.8.340, and 40 CFR 60.7 for NSPS-applicable sources).
 - b. Anticipated start-up date postmarked not more than 60 days nor less than 30 days prior to start up (ARM 17.8.749, ARM 17.8.340, and 40 CFR 60.7 for NSPS-applicable sources).
 - c. Actual start-up date postmarked within 15 days after the actual start-up date (ARM 17.8.749, ARM 17.8.340, and 40 CFR 60.7 for NSPS-applicable sources).
2. AgriTech shall supply the Department with the final overall plot plan showing the location, dimensions, and heights of the structures at the facility, within 15 days of completing the final plot plan. If the final plot plan varies significantly from the preliminary plot plan, AgriTech may have to apply for an alteration to Permit #2835-04 (ARM 17.8.749).

3. Within 30 days of the actual facility start-up date, AgriTech shall supply the Department with the following (ARM 17.8.749):
 - a. For each source listed in Section I.A of the permit analysis, the make, model, type, serial number, year of manufacture, stack height (if applicable), stack diameter (if applicable), stack type (if applicable), and stack lining (if applicable);
 - b. For each piece of control equipment listed in Section I.A of the permit analysis, the make, model, type, serial number, and year of manufacture.
 - c. For the continuous emission monitor on the utility boiler, the make, model, serial number, automatic calibration value zero, and automatic calibration value span.
 - d. Drawings showing the location of each source and associated stacks (if applicable) listed in Section I.A of the permit analysis.

F. Testing Requirements

1. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. The Department may require further testing (ARM 17.8.105).

Section III: General Conditions

- A. Inspection – AgriTech shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if AgriTech fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving AgriTech of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders it’s decision, upon affidavit setting forth the grounds, therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department’s decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board.

- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by AgriTech may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.
- H. Construction Commencement – Construction must begin within 18 months of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

Permit Analysis
AgriTechnology Montana LLC
Permit #2835-04

I. Introduction/Process Description

A. Permitted Equipment

AgriTechnology Montana LLC (AgriTech) proposed to construct and operate an ethanol production facility at approximately ½ mile northeast of Great Falls, Montana, in parcel 4, in the NE¼ of the NW¼ of Section 3, Township 20 North, Range 4 East, Cascade County, Montana. The following equipment are permitted for this facility:

<u>ID #</u>	<u>Emission Point</u>
1	Grain Receiving Baghouse
2	Wheat Pneumatic Transfer
3	Wheat Mill General Aspiration
4	Wheat Mill Cleaning System
5	Wheat Mill Pneumatic System
8	Bran/Dust Receiver-Dust from Receiving and Mill
10	Barley Surge Bin Filter Receiver
11	Barley Hammermills (6)
15	Flour Day Bins (2)
16.1	Gluten Dryer
16.2	Gluten Dryer
17	Blended Gluten Storage Bin Dust Filter
18	Packaging Surge Bins (2)
19	Gluten Packaging Aspiration Receiver
20	Bran/Dust Transfer Filter Receiver
21	Distillation Area CO ₂ Scrubber
23	Ethanol Check Tank – Internal Floating Roof
24	Ethanol Check Tank – Internal Floating Roof
25	Ethanol Product Tank – Internal Floating Roof
26	Gasoline Tank – Internal Floating Roof
27	Rework Tank – Internal Floating Roof
28	Alcohol Area Fugitives
29	Alcohol Loadout (2 scrubbers)
30	DDGS Dryer Scrubbers (2)
32	DDGS Loadout
33	Supplement Tank
34	Utility Boiler
35	Cooling Tower
37	Gluten Blending Surge Bin (2)
38	Central Vacuum System
39	Flour Bin Dust Collector
41.1	Gluten Mill Dust Collector
41.2	Gluten Mill Dust Collector
42	Gluten Bag Dump
43	Gluten Bulk Bag Filler Vent Filter
44	Fermentation System

B. Source Description

The primary products of AgriTech's proposed facility will include 29,000 tons per year of vital wheat gluten; 500,000 tons per year of wheat and barley meal; 255,000 tons per year of food-grade CO₂ (of high enough purity to be used in food manufacturing processes); and 100,000,000 gallons per year of fuel grade ethanol. The plant can be divided into 11 major process areas: wheat/barley receiving, barley milling, wheat cleaning and tempering, wheat milling, wheat gluten plant, starch conversion, fermentation, distillation, distillers dried grain with solubles (DDGS) production from stillage, tank storage and product loadout, and a natural gas utility boiler. The following is a brief description of each of these process areas.

Wheat/Barley Receiving: Grain haul trucks entering the plant are weighed and their grain is quality tested prior to unloading. The wheat and barley are then transported to the unloading facility where each type of grain is handled in a parallel process line. Grain is transferred into two wheat storage silos (171,000 bushels total capacity) or two barley storage silos (475,400 bushels total capacity). After the wheat storage bins, the wheat is pre-cleaned or rough scalped prior to its transfer into the wheat day bins. Reject "overs" material from grain cleaning is dropped into a dumpster for disposal. Five-bucket elevators and nine conveyors move the grain through this part of the process at a design grain receiving rate of 30,000 bushels per hour or 840 tons per hour. Particulate emissions are controlled by the Receiving Transfer Baghouse FA1201.

Barley Milling: Barley is transferred from the storage silos to a pre-cleaning system that removes over-size particles, iron particles, small stones, and sand. Overs waste material from the barley scalper is collected in the dumpster for disposal. The scalped barley is pneumatically conveyed to and stored in Surge Bin TS2202, which is vented to the atmosphere through Baghouse FA2201. Barley from the surge bin is conveyed and metered into a number of destoners where stones and trash that bypassed initial scalping are removed from the process for disposal. Any aspirated dust and fines from the destoner operation are recycled and discharged into the conveyor that feeds the barley milling and sizing system.

The destoned barley is conveyed and metered into a number of hammermills where it is approximately sized to meet process requirements. Each of the six hammermills/conveyor units is vented to the atmosphere through its own respective baghouse (units FA2204A through F). The sized barley meal then passes across a number of vibratory screeners where "unders" or approved process sized meal are mechanically conveyed and discharged to a weigh belt conveyor before the meal is introduced to the ethanol hydrolysis process step. The screened "overs" are collected by Baghouse FA2201 (described above) and recycled back to the barley milling process.

Wheat Cleaning and Tempering: Wheat from grain receiving is pneumatically conveyed by PK1202 to one of six raw wheat day bins before cleaning. This system is vented to the atmosphere through Baghouse FA1202.

In the first cleaning stage, the wheat is cleaned, classified, and destoned. The clean wheat is tempered with water to increase its moisture to the desired level and then held in one of six tempering bins to allow the water to penetrate consistently throughout all the kernels.

After full tempering has been achieved, the wheat is further cleaned. It first passes through a magnet to remove any ferrous materials and is then aspirated to remove dust. After aspiration, the wheat passes through a final magnet before entering the milling process. Waste from the aspirator is conveyed to a dumpster for disposal. Particulate emissions from wheat cleaning, including three bucket elevators, two screw conveyors, as well as the

aspirator and the above cleaning equipment, are controlled by Wheat Mill General Aspiration Dust Collector FA2102.

Wheat Milling: Three sets of eight roller mills and one set of four roller mills grind the wheat. After each milling step, a sifter classifies the material as flour, material requiring further grinding, and material requiring further processing in one of four bran finishers. Two dividers and three cyclones are also used during various parts of the process to classify the material. The final finished flour from the milling process is transferred to one of sixteen flour maturation (residence) bins before being pneumatically conveyed to the gluten/starch separation area. Particulate emissions from the flour bins are controlled by the milling system aspiration system described above. The milling operation aspiration system discharges from FA2103A/B. Bran and dust from the wheat milling process, along with fines from the grain receiving system, are pneumatically conveyed to the bran/dust transfer bin, which is vented to the atmosphere through Baghouse FA2207. Finally the bran is combined with milled barley, weighed, and fed to the starch conversion process. Particulate emissions from these operations are controlled by Baghouse FA2208.

Wheat Gluten Plant: Wheat flour is pneumatically conveyed from the sixteen flour mill maturation bins to one of two flour day bins feeding the gluten and starch separation process. These bins are exhausted to the atmosphere through Flour Day Bin Dust Collectors FA3201A/B. The flour is then fed into parallel processing lines where it is weighed and conveyed to the wet section.

Warm water and flour are mixed together, homogenized in a high-speed disintegrator, and separated into an A-starch stream and a B-starch-gluten stream by a decanter. The A-starch stream is re-slurried in a cyclone and pumped to starch conversion. The B-starch-gluten stream is further processed to separate the gluten from the starch. The recovered starch is pumped to starch conversion. The gluten slurry is dewatered, dried, and recovered in one of two dust collectors FA3304A/B. The dried gluten is then pneumatically conveyed, sifted, and milled. Gluten Mill Dust Collectors FA3307A/B control particulate emissions from the mill.

The wheat gluten is then pneumatically conveyed to gluten blending where it is blended with wheat flour from the flour surge bin or conveyed to the gluten blending bypass system. Finally, the gluten is conveyed to product handling where it is collected in surge bins prior to packaging in either 50-pound bags or FIBCs (supersacks). The blending system is controlled by Dust Collectors FA3305A/B. The flour surge bin is exhausted through the Flour Surge Bin Dust Collector FA3306. The gluten blending bypass system, consisting of the gluten storage bins, is exhausted through Blended Gluten Surge Bin Dust Collectors FA3301A/B. The supersack and 50-pound bag packaging surge bins are exhausted through Dust Collectors FA3303 and FA3302, respectively.

Gluten diverted to the 50-pound bag surge hopper is fed into three 50-pound bag filling stations. Dust Collector FA3401 controls particulate emissions from the aspiration of the bag filling line and valve sealer station. A central vacuum system has been provided for this area with fixed pickup points to clean up spills of dry gluten. This system is exhausted to the atmosphere via Dust Collector FA3402. Dust Collector FA3402 also controls the intermittent emissions from the Gluten Bulk Bag Filler, ME3402.

Starch Conversion: The starch conversion process converts the starch to a fermentable stream, traditionally called mash. Barley flour and wheat starch are mixed in a series of process steps with the following: ammonia, alpha-amylase, phosphoric acid (if needed), saccharification enzymes, and sulfuric acid. No emissions are created in this process.

Fermentation: Fermentation is a continuous process consisting of two parallel trains of five fermentation tanks and a beer well tank. Mash and yeast are combined in the first tank to start the fermentation process. This process eventually yields CO₂ and mash containing 9% ethanol by volume. CO₂ produced in this process is collected and scrubbed to remove volatilized ethanol using two water scrubbers (with a combined efficiency of 99.75%). Following those scrubbers, the CO₂ (and any residual ethanol) will either be transmitted to a CO₂ purification and storage facility or vented to the atmosphere. Ethanol removed in the scrubbing process is recycled to the starch-conversion mixing tank.

Distillation: The distillation process consists of a beer column, rectification column, and two zeolite molecular sieve beds. The beer column distills ethanol from the mash to form 100 proof ethanol. The solids and a large portion of the water entering in the beer leave the column at the bottom as whole stillage, which is pumped to the stillage processing section. The dilute 100 proof ethanol is fed to the rectification column to further concentrate the ethanol to 190 proof. Finally, a molecular sieve bed dehydrates the ethanol vapor to a 199 proof ethanol product. Residual gases produced in this process, primarily CO₂, are drawn off from the column overheads by the vacuum system to be scrubbed. Process streams that contain VOC are vented to the atmosphere from the CO₂ scrubber, TW4302.

DDGS Production from Stillage: Stillage is held in the Whole Stillage Tank prior to being pumped to one of four Whole Stillage Decanter centrifuges for dewatering and solids recovery. The resulting filtrate, called Thin Stillage, is pumped to the Stillage Tank where it is held until being fed to the Thin Stillage Evaporator for concentration. The Stillage Evaporator system is a multiple effect evaporator that concentrates the solids in the Thin Stillage. The resulting concentrate is called Evaporator Syrup.

Dewatered cake from the Whole Stillage Decanter centrifuges is conveyed to the DDGS drying units or discharged to a wet DDGS slab for recycling. The DDGS drying system consists of four gas-fired, rotary dryers arranged in two trains with two dryers in series in each train. A portion of each dryer's product is reintroduced into its feed stream to optimize the drying process. In the second stage dryer, product from the first stage is mixed with Evaporator Syrup and the recycle portion of the second stage product. This mixture is then dried to a final moisture content of 10 percent. The portion of this dried mixture that is not recycled through the dryer is transferred to a rotary water-tube cooler, discharged, and mechanically conveyed to storage piles via distribution gates. Front-end loaders arrange the piles to maximize storage area. A conveying system transports the stored material to one of two combination rail or truck load-out and scale stations. The load-out system incorporates a retractable aspiration spout that aspirates and recycles the collected dust back into the load-out spout.

A substantial portion of the exhaust gases from each dryer stage in the DDGS drying units is circulated through heat exchangers that preheat the combustion inlet air. Vapors from the first stage dryer are ducted to the combustion chamber of the final dryer for incineration of the residual ethanol. Combustion gases and entrained fines from the second stage dryers pass through a bank of high efficiency cyclone collectors. The fines discharged from the cyclones are recycled back into the DDGS drying unit. Prior to discharge, the gases and residual fines that exhaust from the cyclones are routed through one of two multi-stage impingement plate type scrubbers (TW5101A/B) for final control of particulate and VOC emissions. The effluent from the scrubbers is pumped to the thin stillage collection vessel for reprocessing.

Tank Storage and Product Loadout: Ethanol produced in the distillation process is pumped into two 130,000-gallon ethanol check tanks for sampling and testing. From there, the ethanol is sent either to the finished product ethanol tank (1,540,000 gallons capacity) or the

rework ethanol tank (130,000 gallons capacity). Before the finished product is stored, unleaded gasoline from an 80,000-gallon tank is added to it. All of these tanks are enclosed with internal floating, welded deck roofs. Loading arms load the ethanol product into trucks or railcars. VOC emissions from truck and rail loading are controlled by water scrubbers; TW4701 and TW4702, respectively.

Sodium hydroxide, sulfuric acid, calcium chloride, phosphoric acid, and aqueous ammonia are used throughout the process and are (each) stored in 7,500-gallon tanks. Additional chemicals are used in the process or for various utilities such as boiler water treatment, etc. These chemicals, that are stored in tanks, include various enzymes, antifoam, sodium sulfite, sodium bisulfite, phosphate, and amines. No air pollutants are emitted from these storage tanks.

Natural Gas Boiler: A 358 MMBtu per hour natural gas-fired boiler generates the steam used in the wheat gluten plant, starch conversion, distillation, and stillage handling processes. Flue gas recirculation and low NO_x burners control NO_x emissions from the boiler.

C. Permit History

On April 5, 1995, American Ethanol Corporation (American Ethanol) submitted a complete permit application to operate an ethanol plant to produce fuel grade ethanol, distillers' dried grains with solubles (DDGS), gluten, and CO₂. The plant was permitted to locate approximately ½ mile northeast of Great Falls, in parcel 4, in the NE¼ of the NW¼ of Section 3, Township 20 North, Range 4 East, Cascade County, Montana.

On May 25, 1995, the Environmental Protection Agency (EPA) commented that American Ethanol's ethanol plant was a chemical processing plant and, as such, was a Prevention of Significant Deterioration (PSD) 100-ton-per-year listed source. On August 21, 1995, American Ethanol submitted additional information that allowed the Department of Environmental Quality (Department) to limit their emissions to below the 100 ton per year PSD threshold by incorporating federally enforceable limitations in the permit for the facility. Permit #2835-00 was issued on September 24, 1995.

Permit #2835-01 was issued on May 6, 1998. The permitting action was a modification to the existing permit to account for a name change from American Ethanol Corporation to American Agri-Technology of Montana, Inc. In addition, the rule references were updated and the permitting language was changed to reflect the current methods used for writing permits. Permit #2835-01 replaced Permit #2835-00.

Permit #2835-02 was issued on October 1, 1998. The permit action was a modification to the existing permit to re-authorize American Agri-Technology of Montana Inc.'s ability to commence construction of the facility. The original Permit #2835-00 was issued on September 24, 1995, and included a requirement in Section III.G. for construction to begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked. As of September 10, 1998, American Agri-Technology of Montana, Inc. had not begun construction at the site. However, American Agri-Technology intended to construct the facility and requested that the permit be re-authorized for another 3 years. American Agri-Technology of Montana, Inc. stated that no significant changes in plant design or equipment usage were intended since the original permit application was submitted. The Department determined that the Department's original analysis, which established conditions and limitations necessary to demonstrate compliance with applicable requirements, including the Best Available Control Technology (BACT) determination,

remained accurate. Therefore, the Department issued Permit #2835-02 to allow American Agri-Technology of Montana, Inc. an additional 3 years to construct the facility.

In addition, this permitting action changed the name from American Agri-Technology of Montana, Inc. to American Agri-Technology Operating, LLC. Permit #2835-02 replaced Permit #2835-01.

Permit **#2835-03** was issued on November 6, 2001. The permit action was an alteration to the existing permit for a revised facility design. The proposed facility design had undergone significant changes since the previous permit was issued (construction had not yet commenced on the previously permitted facility), including increasing the potential production capacity and consequently the criteria pollutant emissions. Increases in nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter (PM), particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM₁₀), volatile organic compounds (VOC), and sulfur dioxide (SO₂) would result from the increased fuel combustion in the two gluten dryers, the distillers dried grains with solubles (DDGS) dryer, and the utility boiler. Increases in fugitive PM, PM₁₀, and VOC emissions would result from increased production and grain handling. Because the increase in potential plant-wide emissions would exceed 100 tons per year for some criteria pollutants (including PM, PM₁₀, NO_x, and CO), the facility is considered a “listed major stationary source” as defined by the Prevention of Significant Deterioration (PSD) of Air Quality regulations (40 CFR 52.21 and ARM 17.8.818). Thus, this permit application constituted a PSD application. In addition, this permitting action changed the name from American Agri-Technology Operating, LLC to Agri-Technology Corporation. Following the issuance of the Preliminary Determination, the facility requested that the name be changed to AgriTechnology Montana LLC. Permit #2835-03 replaced Permit #2835-02.

D. Current Permit Action

On October 10, 2003, the Department received a request from AgriTech to modify the currently permitted plant configuration identified in Permit #2835-03. In Permit #2835-03, the fermentation system (including a water scrubber) was not an emitting unit, as the CO₂/VOC stream would be routed off-site for processing. Therefore, no emissions were accounted for from the fermentation system. AgriTech requested to be permitted for the alternative scenario of venting the fermentation system to the atmosphere. AgriTech proposed adding another water scrubber to the existing water scrubber for VOC (ethanol) recovery and to limit the amount of VOCs emitted from the fermentation system when it is vented to atmosphere. Permit **#2835-04** replaces Permit #2835-03.

E. Additional Information

Additional information, such as applicable rules and regulations, BACT determinations, air quality impacts, and environmental assessments, is included in the permit analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available upon request from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1, General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment, including instruments and sensing devices, and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department. The Department determined, for the current permit action, that initial testing is necessary.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

AgriTech shall comply with all requirements contained in the Montana Source Test Protocol and Procedures Manual including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2, Ambient Air Quality, including, but not limited to:

1. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
2. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
3. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
4. ARM 17.8.213 Ambient Air Quality Standard for Ozone
5. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
6. ARM 17.8.221 Ambient Air Quality Standard for Visibility
7. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

AgriTech must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3, Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter - Airborne. (1) This rule requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precautions be

taken to control emissions of airborne particulate. (2) Under this rule, AgriTech shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter - Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter - Industrial Processes. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions - Sulfur in Fuel. Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. The natural gas combusted in AgriTech's DDGS Dryers, Gluten Dryers, and Boilers will comply with the sulfur-in-fuel requirements.
6. ARM 17.8.324 Hydrocarbon Emissions- Petroleum Products. No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule. This rule applies to the gasoline storage tank, but 40 CFR 60, Subpart Kb is more stringent and supersedes this rule.
7. ARM 17.8.340 Standard of Performance for New Stationary Sources. The owner or operator of any stationary source or modification, as defined and applied in 40 CFR Part 60, shall comply with the standards and provisions of 40 CFR Part 60.

40 CFR 60, Subpart D - Standards of Performance for Fossil Fuel Fired Steam Generators applies to the utility gas boiler because it has a heat input capacity greater than 100 MMBtu/hr, is fired with a fossil fuel, and produces steam. Although the DDGS Dryer also has a heat input capacity greater than 100 MMBtu/hr and is fired with a fossil fuel, it does not produce steam; therefore, it is excluded from Subpart D.

40 CFR 60, Subpart Db - Standards of Performance for Industrial Commercial-Institutional Steam Generating Units applies to the utility boiler because it has a heat input capacity greater than 100 MMBtu/hr. Although the DDGS Dryer also has a heat input capacity greater than 100 MMBtu/hr, it is excluded from Subpart Db according to an EPA memo dated November 17, 1992. The memo states that, "Subparts Db and Dc do not apply to process dryers or kilns," of which the DDGS Dryer is a process dryer.

40 CFR 60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels applies to the two ethanol check tanks, the ethanol product tank, the gasoline tank, and the off-spec ethanol tank because they each have a storage capacity greater than 151 cubic meters and contain VOCs with a maximum true vapor pressure greater than 3.5 kiloPascals (kPa).

40 CFR 60, Subpart DD - Standards of Performance for Grain Elevators does not apply to the AgriTech facility. Subpart DD applies only to grain terminal elevators or grain storage elevators, both of which are defined in part by storage capacity. AgriTech's grain storage units are sized well below the defined threshold capacities.

40 CFR 60, Subpart VV - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry applies to this facility because the facility produces ethanol (a listed chemical) as a final product and operates equipment (i.e., pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges) that contains or contacts process fluids that are at least 10% VOC by weight.

40 CFR 60, Subpart NNN - Standards of Performance for Volatile Organic Compounds Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations does not apply to the AgriTech facility. The facility is not subject because it manufactures ethanol using biomass rather than a synthetic process.

40 CFR 60, Subpart RRR - VOC Emissions from SOCMI Reactor Processes does not apply to the AgriTech facility. The facility is not subject because it manufactures ethanol using biomass rather than a synthetic process.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This rule incorporates, by reference, 40 CFR Part 63, NESHAP for Source Categories. Since the emissions of Hazardous Air Pollutants (HAPs) from the AgriTech ethanol facility are less than 10 tons per year for any individual HAP and less than 25 tons per year for all HAPs combined, the AgriTech facility is not subject to the provisions of 40 CFR Part 63.
- D. ARM 17.8, Subchapter 4, Stack Height and Dispersion Techniques, including, but not limited to:
1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.
 2. ARM 17.8.402 Requirements. AgriTech must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). AgriTech demonstrated, through the air quality modeling and downwash review, that the new stack heights are consistent with GEP.
- E. ARM 17.8, Subchapter 5, Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:
1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. AgriTech submitted the appropriate permit application fee for the current permit action.
 2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

The annual assessment and collection of the air quality operation fee, as described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules such conditions as may be

necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions which pro-rate the required fee amount.

- F. ARM 17.8, Subchapter 7, Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:
1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
 2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. AgriTech has the potential to emit more than 25 tons per year of particulate matter, NO_x, CO, and VOCs; therefore, a permit is required.
 3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
 4. ARM 17.8.745 Montana Air Quality Permits—Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
 5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration or use of a source. AgriTech submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. AgriTech submitted an affidavit of publication of public notice for the October 16, 2003, issue of the *Great Falls Tribune*, a newspaper of general circulation in the Town of Great Falls in Cascade County, as proof of compliance with the public notice requirements.
 6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
 7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
 8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
 9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving AgriTech of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
 10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's

responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

G. ARM 17.8, Subchapter 8, Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modification--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

The AgriTech ethanol production facility is defined as a "major stationary source" because it is a listed source (chemical processing plant) with the PTE more than 100 tons per year of PM, PM₁₀, NO_x, and CO. This permit action is not significant with respect to PSD, and therefore, is not subject to PSD review.

H. ARM 17.8, Subchapter 12 - Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:

- a. PTE > 100 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one HAP, PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 tons/year of PM₁₀ in a serious PM₁₀ nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #2835-04 for AgriTech, the following conclusions were made:
- a. The facility's PTE is greater than 100 tons/year for several criteria pollutants.
 - b. The facility's PTE is less than 10 tons/year of any one HAP and less than 25 tons/year of all HAPs.
 - c. This facility is not located in a serious PM₁₀ nonattainment area.
 - d. This facility is subject to several current NSPS standards (40 CFR 60, Subparts D, Db, Kb, and VV).
 - e. This facility is not subject to a current NESHAP standard.
 - f. This facility is not a Title IV affected source.
 - g. This facility is not an EPA designated Title V source.

Based on the above information, the AgriTech facility is a major source for Title V and, thus, a Title V Operating Permit is required.

III. BACT Determination

A BACT determination is required for each new or altered source. AgriTech shall install on the new source the maximum air pollution control capability that is technically practicable and economically feasible, except that the BACT shall be utilized. The fermentation system (specifically the off-gas stream) is subject to BACT for VOCs.

AgriTech's design described in the permit application for #2835-03 included one scrubber on the fermentation process (as a process unit, not as an emission control unit). In the original operating scenario, this scrubber would capture ethanol and return it to the production process, thereby increasing product yield. The exhaust from that scrubber would be transferred to an off-site CO₂ processing plant where the residual ethanol from the scrubbing operation would be extracted and returned to the ethanol plant. AgriTech's preference remains the original operating scenario. However, the alternate operating scenario (the basis for this permit action) would allow ethanol plant operations to continue if the fermentation off-gasses could not be sent to the CO₂ plant and were vented to the atmosphere. The BACT analysis addresses this scenario. The information is arranged based on the "Top-Down BACT Process."

Step 1: Identify All Control Technologies

Two classes of control technology are generally available for control of VOC emissions. The first class of control equipment, generally referred to as wet scrubbers, removes VOCs by passing the effluent stream through a solvent in which the VOCs are soluble. The VOC content of the

fermentation off-gas stream would consist almost entirely of ethyl alcohol (ethanol). Because ethanol is soluble in water, water would be the solvent of choice for the fermentation scrubber. The second class of control technology commonly used to reduce VOC emissions oxidizes the VOCs to form CO₂ and water. This class includes thermal oxidizers (TOs), regenerative or recuperative thermal oxidizers (RTOs), and catalytic oxidation.

The two control alternatives that will be compared, then, are 1) an initial water scrubber (as described in Permit Application #2835-03) followed by a second water scrubber and 2) a water scrubber followed by oxidizing technology control equipment.

Step 2: Eliminate Technically Infeasible Options

Scrubbing and oxidizing technologies are both technically feasible for reducing VOCs from the fermentation process off-gas stream. Oxidizers, however, are not well suited for this type of application. This is because the fermentation off-gasses contain very little oxygen, which is required for the oxidation reaction. Oxygen would have to be added to the gas stream. Additionally, the gases exiting from the first scrubber would have a very low VOC concentration. Since the VOCs themselves supply a portion of the energy required to maintain reaction temperatures in the oxidizer, additional fuel would be required.

Step 3: Rank Remaining Technologies by Control Effectiveness

Oxidizers are generally guaranteed to remove up to 99% of VOCs present in the gas stream. Scrubbers can achieve up to 95% removal efficiency. The base case involves one water scrubber (with a manufacturer's guarantee of 95% efficiency). Therefore, the stream that would be treated downstream of the existing water scrubber would contain approximately 262.8 tons per year of VOCs. An oxidizer would reduce the amount vented to approximately 2.63 tons per year, ranking ahead of the additional water scrubber, which would reduce the amount vented to 13.14 tons per year.

Step 4 - Evaluate Most Effective Controls and Document Results

Effectiveness: As stated above, oxidizers would achieve a slightly higher effectiveness than a water scrubber for a VOC stream whose primary component is ethanol.

Economic considerations: Capital costs for an oxidation system are estimated to be on the order of \$2,000,000, which would be approximately \$7687 per ton removed. The capital cost of a secondary scrubber is estimated to be approximately \$250,000, approximately \$1001 per ton removed. Detailed operating costs for the two types of systems were not identified for this analysis; however, it is expected that operating costs for an oxidation system would not be significantly, if any, lower than those for a scrubbing system. AgriTech could also receive some economic benefit from a scrubber since the ethanol captured in the scrubber water would be returned to the production process as make-up water, thereby increasing product yield. The Department views the cost difference as significant, particularly considering an additional \$6686 per ton removed (for the oxidizer) would be expended to decrease the overall emissions by only 10.51 tons per year.

Ancillary environmental impacts: Because oxidizers require elevated temperatures to operate, they must burn some kind of fuel. This combustion is itself a source of NO_x emissions. Additionally, oxidizers that use catalysts to facilitate combustion generate a solid waste in the form of spent catalyst that may pose an environmental concern.

The water scrubber system under consideration for this analysis would produce no ancillary

environmental impacts. Because the water from the scrubber system would be returned to the production process, the only waste stream from the scrubbers would be the scrubbed fermentation off-gasses. This purged gas stream would contain air and CO₂.

Energy requirements: Both the oxidizer and the scrubber system would require electrical energy to power fans for moving the gasses through the systems. As stated above, oxidation systems require additional energy inputs to achieve the necessary temperatures for oxidation.

Step 5: Select BACT

AgriTech proposes that a dual water scrubber system achieving at least 99.75% control (including the base case water scrubber, which was included in Permit Application #2835-03 as a process unit) is BACT for VOC emissions from the fermentation process, when that process is venting to atmosphere.

The oxidizer would have a slightly higher efficiency than the additional water scrubber. However, the scrubbing system has significant inherent economic and environmental advantages over oxidation technologies. EPA's RACT/BACT/LAER Clearinghouse indicates that water scrubbing has been accepted as BACT for control of VOC emissions from similar operations at ethanol plants throughout the country.

Based on this information, the Department concurs that a dual water scrubber system (two water scrubbers in series) with a manufacturer's guarantee of 99.75% control (95% control per scrubber) with a 3.0 lb/hr limit on VOCs constitutes VOC BACT for the fermentation system, when that system is venting to atmosphere. The initial water scrubber would be included in the permit requirements to make it federally enforceable.

IV. Emissions Inventory -- Permit #2835-04

Source		PM	PM ₁₀	Ton/Year NO _x SO ₂		VOC	CO
1	Grain Receiving Baghouse	10.15	10.15				
2	Wheat Pneumatic Transfer	0.372	0.372				
3	Wheat Mill General Aspiration	0.876	0.876				
4	Wheat Mill Cleaning System	0.263	0.263				
5	Wheat Mill Pneumatic System	0.657	0.657				
8	Bran/Dust Receiver-Dust from						
	Receiving and Mill	0.215	0.215				
10	Barley Surge Bin Filter Receiver	0.810	0.810				
11	Barley Hammermills (6)		4.564	4.564			
15	Flour Day Bins (2)	0.390	0.390				
16.1	Gluten Dryer	9.470	9.470	2.348			13.166
16.2	Gluten Dryer	9.470	9.470	2.348			13.166
17	Blended Gluten Storage Bin						
	Dust Filter	0.215	0.215				
18	Packaging Surge Bins (2)	0.184	0.184				
19	Gluten Packaging Aspiration						
	Receiver	0.745	0.745				
20	Bran/Dust Transfer Filter						
	Receiver	0.171	0.171				
21	Distillation Area CO ₂ Scrubber	0.127	0.127			9.636	
23	Ethanol Check Tank – Internal						
	Floating Roof					0.254	
24	Ethanol Check Tank – Internal						
	Floating Roof					0.254	
25	Ethanol Product Tank – Internal						
	Floating Roof					0.272	
26	Gasoline Tank – Internal Floating						
	Roof					0.749	
27	Rework Tank – Internal Floating						
	Roof					0.061	
28	Alcohol Area Fugitives					26.718	
29	Alcohol Loadout (2 scrubbers)					2.891	
30	DDGS Dryer Scrubbers (2)	100.0	100.0	78.84	0.767	35.916	16.907
32	DDGS Loadout	0.237	0.237				
33	Supplement Tank	0.219	0.219				
34	Utility Boiler	78.40	78.40	130.1	0.924	6.272	78.402
35	Cooling Tower	4.490	4.490				
36	Traffic Road Dust	47.04	9.154				
37	Gluten Blending Surge Bin (2)	0.066	0.066				
38	Central Vacuum System		0.061	0.061			
39	Flour Bin Dust Collector	0.263	0.263				
41.1	Gluten Mill Dust Collector	1.708	1.708				
41.2	Gluten Mill Dust Collector	1.708	1.708				
42	Gluten Bag Dump	0.001	0.026				
43	Gluten Bulk Bag Filler Vent						
	Filter	0.003	0.026				
44	Fermentation System					13.14	
Total		271.2	233.3	213.6	1.7	96.16	121.6

The complete emission inventory is available in Permit Application #2835-03, with information regarding Source 44 – Fermentation System in Permit Application #2835-04. The emissions listed in the table above reflect emissions controlled by permit conditions (BACT, for example). Only those controls listed (and therefore, enforceable) within the permit are included in the emission inventory calculations.

V. Existing Air Quality and Impacts

Existing Air Quality

The *Federal Register* (September 9, 1980, 45 FR 59315) designated a corridor along 10th Avenue South as nonattainment for CO based upon air quality data gathered at the intersection of 10th Avenue South and 9th Street. The 1990 Clean Air Act Amendments listed Great Falls as an unclassified nonattainment area for CO. This was based on the 1988 and 1989 data in which no violations of either the one-hour or eight-hour standards were recorded.

Montana previously submitted to EPA a CO control strategy for Great Falls that relied upon significant emission reductions at the Montana Refining Company refinery (formerly Phillips Petroleum and Simmons Refinery) and federal automobile emission standards. On May 9, 2002, Great Falls was redesignated to attainment for CO under a Limited Maintenance Plan.

Air Quality Impacts

VOC emissions would result from the proposed project. As the proposed increase is limited to 13.14 tons per year, the impact is estimated to be minimal. No impacts on CO (with respect to the Limited Maintenance Plan) would occur as a result of this project.

VI. Taking or Damaging Implication Analysis

As required by 2-10-101 through 2-10-105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was performed for this permitting action. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air and Waste Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: AgriTechnology Montana LLC
511 Central Avenue West, Suite 3
Great Falls, MT 59404-2848

Air Quality Permit Number: #2835-04

Preliminary Determination Issued: 10/24/03
Department Determination Issued: 11/12/03
Permit Final: 11/29/03

1. *Legal Description of Site:* AgriTech's ethanol production facility would be located approximately ½ mile northeast of Great Falls, Montana, in parcel 4, in the NE¼ of the NW¼ of Section 3, Township 20 North, Range 4 East, Cascade County, Montana.
2. *Description of Project:* The Department proposes to modify AgriTech's Montana Air Quality Permit (MAQP) and the currently permitted plant configuration. In Permit #2835-03, the fermentation system (including a water scrubber) was not an emitting unit, as the carbon dioxide (CO₂)/volatile organic compound (VOC) stream would be routed off-site for processing. Therefore, no emissions were accounted for from the fermentation system. AgriTech requested to be permitted for the alternative scenario of venting the fermentation system to the atmosphere. AgriTech proposed adding another water scrubber to the existing water scrubber for VOC (ethanol) recovery and to limit the amount of VOCs emitted from the fermentation system when it is vented to atmosphere.
3. *Objectives of Project:* The objective of the project would be to allow AgriTech the option of venting VOCs from its fermentation process if no vendor becomes available who is willing to process the CO₂/ethanol stream produced by the fermentation process.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the "no action" alternative. The "no action" alternative would deny the issuance of the MAQP to AgriTech and would not allow any venting of VOCs from the fermentation process. Under the "no action" alternative, none of the impacts described in this EA would occur.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a Best Available Control Technology (BACT) analysis, would be included in Permit #2835-04.
6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions would be reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and would not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no action" alternative was discussed previously.

Potential Physical and Biological Effects							
		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Terrestrial and Aquatic Life and Habitats			X			yes
B.	Water Quality, Quantity, and Distribution			X			yes
C.	Geology and Soil Quality, Stability, and Moisture			X			yes
D.	Vegetation Cover, Quantity, and Quality			X			yes
E.	Aesthetics			X			yes
F.	Air Quality			X			yes
G.	Unique Endangered, Fragile, or Limited Environmental Resource			X			yes
H.	Demands on Environmental Resource of Water, Air, and Energy			X			yes
I.	Historical and Archaeological Sites			X			yes
J.	Cumulative and Secondary Impacts			X			yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

This permitting action would have a minor effect on terrestrial and aquatic life and habitats, because the proposed project would affect an already permitted (although not built) industrial property that has already been disturbed (through agricultural activities). In addition, minor effects from the increase in VOC emissions (13.14 tons) might be seen. The small amount of air impact would correspond to an equally small amount of deposition.

Aquatic life and habitats would realize little or no impact from the proposed facility because AgriTech is not proposing to directly discharge any material to the surface or ground water in the area (as all water/wastewater drainage from the facility would be handled by the City of Great Falls) and the resulting air emissions to any water body would be very minor.

B. Water Quality, Quantity, and Distribution

This permitting action would have little to no effect on the water quality, water quantity, and distribution because there would be no discharges to groundwater or surface water associated with this permitting action. A small increase in VOC emissions would be expected as a result of this project, but should have only a minor impact, if any impact at all, on water.

C. Geology and Soil Quality, Stability, and Moisture

This permitting action would have a minor effect on geology and soil quantity, stability, and moisture, because the proposed project would affect an already permitted (although not built), industrial property that has already been disturbed (through agricultural activities). A small portion of land would be disturbed (in addition to that permitted under #2835-03) for water scrubber footings. The increase in VOC emissions for this project might have a minor effect on the soil stability and moisture, however the air quality permit associated with this project contains limitations to minimize the effect of the emissions (including BACT and an emission limitation) on the surrounding environment.

D. Vegetation Cover, Quantity, and Quality

This permitting action would have a minor effect on vegetation cover, quantity, and quality. The proposed project would affect an already permitted (although not built) industrial property that has already been disturbed (through agricultural activities). No additional vegetation on the site beyond that permitted in #2835-03 would be disturbed for the project. The increase in VOC emissions for this project might have a minor effect on the surrounding vegetation, however the air quality permit associated with this project contains limitations to minimize the effect of the emissions (including BACT and an emission limitation) on the surrounding environment. The small amount of air impact would correspond to an equally small amount of deposition.

E. Aesthetics

The impacts to the aesthetics of the area from this project would be minor because the additional water scrubber that would be implemented as a part of this permit action would not change the overall appearance of the facility permitted under Permit #2835-03. No noise or traffic impacts are anticipated as a result of this project. As a result of the permit action, AgriTech would have the option of venting approximately 13.1 tons of VOCs (primarily ethanol) to the atmosphere, but the impact on odors from that change would be minor.

F. Air Quality

There would be air quality impacts resulting from the proposed project. The net emissions increases associated with the project would be approximately 13.14 tons per year of VOCs. AgriTech would be required to maintain compliance with its current permit conditions (including BACT) and state and federal ambient air quality standards. There is no national or state ambient air quality standard for VOCs, however, VOC emissions are taken into consideration when evaluating compliance with the ozone standard. The effect on air quality would be minor.

G. Unique, Endangered, Fragile, or Limited Environmental Resources

During the process of permitting #2835-03, to identify any unique, endangered, fragile, or limited environmental resources in the immediate area of the proposed project, the Department contacted the Montana Natural Heritage Program of the Natural Resource Information System (NRIS), which catalogues species of special concern of the U.S. Forest Service, U.S. Fish and Wildlife Service; and Bureau of Land Management. The Natural Heritage Program files identified eight species of special concern in the 1-mile buffer area surrounding the section, township, and range of the proposed facility. The two plant species identified that were observed in the same U.S.G.S quadrangle (Northeast Great Falls) as the AgriTech facility were the *entosthodon rubiginosus* and the *funaria americana* (no common

names listed for either). Both of these species are found on or near the Missouri River. The search results indicated that both of these plant species were previously recorded within a 5-mile radius. The 5-mile radius does include several miles of the Missouri River. Six species of special concern were identified in the nearby Southeast Great Falls Quadrangle including the *najas guadalupensis* (guadalupe water-nymph), *psilocarphus brevissimus var brevissimus* (dwarf woolly-heads), *carex sychnocephala* (many-headed sedge), *bacopa rotundifolia* (roundleaf water-hyssop), *centunculus minimus* (chaffweed), and *elatine californica* (california waterwort). All of these species are plant species and all except for *elatine californica* (which did not list a site description) occur near ponds, moist meadows, stream edges, and similar habitats. From the information provided by NRIS, no unique, endangered, fragile or limited environmental resources were identified on the proposed project site location.

The impact to unique, endangered, fragile or limited environmental resources from this project would be minor because the project would occur at an already disturbed site and would be minor in scope with respect to emissions increases. In addition, due to the plume characteristics from the proposed facility, the emissions would predominantly be carried to the north and east of the facility, away from the location of the plant species of special concern.

H. Demands on Environmental Resource of Water, Air, and Energy

As described in Section 7.B of this EA, this permitting action would have little to no effect on the environmental resource of water as there would be no discharges to groundwater or surface water associated with this permitting action.

As described in Section 7.F of this EA, the impact on the air resource in the area of the facility would be minor because the air emissions from the proposed project are low and the facility would be required to maintain compliance with their air quality permit as well as national and state ambient air quality standards. There is no national or state ambient air quality standard for VOCs, however, VOC emissions are taken into consideration when evaluating compliance with the ozone standard.

A minor impact to the energy resource is expected, a new water scrubber, which would have small energy requirements (particularly in light of the overall facility's energy demands), would be operating in the fermentation system. Energy would be required to power fans for moving gases through the water scrubber system.

I. Historical and Archaeological Sites

The proposed project would occur within the boundaries of the already permitted AgriTech facility area. That area had been previously disturbed by agricultural activities. The Department contacted the Montana Historical Society – State Historic Preservation Office (SHPO) in an effort to identify any historical, archaeological, or paleontological sites or findings near the proposed project prior to the issuance of Permit #2835-03. SHPO's records indicate that there is one previously recorded historic site within the designated search locale. Site 24CA0264 is the old Chicago, Milwaukee, St. Paul, and Pacific Railroad bed. However, this site code covers the entire railroad bed area that lies within Cascade County, not just that area that resides within the proposed AgriTech facility boundaries. The Manchester Overpass on that railroad line, which is the listed site name for Site 24CA0264, is located West of Great Falls. However, part of the railroad line appears to have been located just south of the proposed facility area. No eligible (with respect to the National Register of Historic Places) structures or buildings exist in the proposed AgriTech facility area associated with this site

code. In addition, because of the fact that severe agricultural activities have occurred in the area, the likelihood of finding undiscovered or unrecorded historical properties is practically nil. A cultural resource inventory had been previously conducted in the area: Cultural Resources Survey of Approximately 1250 Acres in the Vicinity of Malmstrom Air Force Base Great Falls, Montana by T. Weber Greiser. It was conducted in 1988 by the U.S. Air Force. Based on the fact that the proposed project area had been previously surveyed and also previously disturbed, SHPO maintains that there is low likelihood that this project would impact unknown or unrecorded cultural properties.

J. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project on the physical and biological aspects of the human environment would be minor because the impact with respect to the already permitted (although not built) AgriTech facility is very small. In addition, the overall air impact from the proposed AgriTech facility combined with the other Great Falls industrial sources is small. The highest impacts from each of the other nearby industrial sources (Montana Refining Company, Malmstrom Air Force Base, and the proposed NorthWestern Montana First Megawatts, LLC) would not occur at the same receptor, and the pollutant of concern for each of the nearby industries is generally different.

The proposed project may slightly increase the odors produced from the AgriTech facility. Although possible odors from this proposed facility would be in addition to other odors common to the Great Falls area (grain handling, vehicle exhaust, and industrial odors from the refinery and the rendering plant), the cumulative and secondary impacts would be minor due to the small size and scope of the fermentation system project.

8. The following table summarizes the potential social and economic effects of the proposed project on the human environment. The "no action" alternative was discussed previously.

Potential Social and Economic Effects							
		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Social Structures and Mores				X		yes
B.	Cultural Uniqueness and Diversity				X		yes
C.	Local and State Tax Base and Tax Revenue				X		yes
D.	Agricultural or Industrial Production				X		yes
E.	Human Health			X			yes
F.	Access to and Quality of Recreational and Wilderness Activities			X			yes
G.	Quantity and Distribution of Employment				X		yes
H.	Distribution of Population				X		yes
I.	Demands for Government Services			X			yes
J.	Industrial and Commercial Activity				X		yes
K.	Locally Adopted Environmental Plans and Goals				X		yes

L.	Cumulative and Secondary Impacts			X			yes
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SUMMARY OF COMMENTS ON POTENTIAL SOCIAL AND ECONOMIC EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The proposed facility would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) in the area because the project would be constructed at a site permitted for industrial use. The proposed project would not change the nature of the site in its permitted use.

B. Cultural Uniqueness and Diversity

The proposed project would not cause a change in the cultural uniqueness and diversity of the area because the land is currently permitted to be used as an ethanol production facility; therefore, the land use would not be changing for this permit action.

C. Local and State Tax Base and Tax Revenue

This project would have no effect on the local and state tax base and tax revenue because the proposed change would allow AgriTech the flexibility to vent the VOC emissions if an off-site CO₂ recovery facility is unavailable. If AgriTech is able to sell the CO₂ stream, the profitability of the plant may benefit. However, this permit action does not prohibit AgriTech from selling the CO₂ stream, it only provides flexibility in operations. Therefore, no effect on the local and state tax base and revenue would occur.

D. Agricultural or Industrial Production

The proposed project would not result in a reduction of available acreage or productivity of any agricultural land; therefore, agricultural production would not be affected. With respect to industrial production, the proposed change would allow AgriTech the flexibility to vent the VOC emissions if an off-site CO₂ recovery facility is unavailable. However, this permit action does not prohibit AgriTech from selling the CO₂ stream, it only provides flexibility in operations. Therefore, no effect on the industrial production would occur.

E. Human Health

As described in Section 7.F of the EA, the impacts from this facility on human health would be minor because the VOC emissions from the permitted facility would increase, but not significantly (the increase would be approximately 13.14 tons per year of potential emissions) from prior permitted levels. The air quality permit for this facility incorporates conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

F. Access to and Quality of Recreational and Wilderness Activities

No significant recreational or wilderness activities exist within the AgriTech property boundaries. The property is currently used as a wheat field. Recreational activities exist in the area surrounding the permitted site location for AgriTech. The closest recreational opportunities appear to be the Rivers Edge Trail (closest point approximately ¾ mile), Giant Springs Heritage State Park (approximately ¾ mile), the Lewis and Clark Interpretive Center

(approximately ¾ mile), the Missouri River (closest point approximately ¾ mile), the North Shore Conservation Easement Lands, Black Eagle Dam, Rainbow Dam, Cochrane Dam, Ryan Dam, and Morony Dam. Based on the small amount of emissions increase for the project (see Section 7.F of the EA) and the distance between and direction from the recreational sites and the AgriTech project site, the impacts to the previously mentioned recreational opportunities and other recreational opportunities in the area would be minor, if any at all.

G. Quantity and Distribution of Employment

The proposed project would not result in any impacts to the quantity or distribution of employment at the facility or surrounding community. No employees would be hired at the facility as a result of the project.

H. Distribution of Population

The proposed project does not involve any significant physical or operational change that would affect the location, distribution, density, or growth rate of the human population.

I. Demands of Government Services

The demands on government services would experience a minor impact. The primary demand on government services would be the acquisition of the appropriate permits by the facility (including local building permits, as necessary, and a state air quality permit) and compliance verification with those permits.

J. Industrial and Commercial Activity

The proposed change would allow AgriTech the flexibility to vent the VOC emissions if an off-site CO₂ recovery facility is unavailable. However, this permit action does not prohibit AgriTech from selling the CO₂ stream, it only provides flexibility in operations. Therefore, no effect on the industrial and commercial activity would occur.

K. Locally Adopted Environmental Plans and Goals

The Department is unaware of any locally adopted environmental plans and goals that would be affected by the proposed change to the facility. The conditions associated with the Great Falls CO Limited Maintenance Plan would apply within the Great Falls area regardless of this project's status. The planning efforts by the City of Great Falls for the Missouri River corridor also would not be affected by this proposed change.

L. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project on the social and economic aspects of the human environment would be minor because minor impacts may be seen in the areas of human health, quality of recreational and wilderness activities, and demands of government services. The proposed project provides AgriTech with operational flexibility in the instance that no outside entity chooses to build an off-site CO₂ processing facility in the area. The project is associated with an already permitted facility and would not change the culture or character of the area.

Recommendation: No EIS is required.

IF an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the modification of AgriTech's already permitted plant configuration to add the ability to vent VOCs from its fermentation process if an off-site CO₂ recovery facility is unavailable. Permit #2835-04 would include conditions and limitations to ensure the facility would operate in compliance with all applicable rules and regulations. Based on the foregoing review, there are no significant impacts associated with this proposal and the scope of the review is appropriate considering the nature and complexity of the project.

Other groups or agencies contacted or that may have overlapping jurisdiction: None.

Individuals or groups contributing to this EA: Department of Environmental Quality (Air and Waste Management Bureau and Resource Protection Planning Bureau)

EA prepared by: Debbie Skibicki

Date: 10/23/03